Number 17

BUILDER INSIGHT

BC HOUSING RESEARCH CENTRE

Builder Insight is a series of bulletins and companion videos designed to provide practical information on new technologies, research results, good building practices and emerging technical issues in residential construction to Licensed Residential Builders and others in the industry. This bulletin was prepared by RDH Building Science in collaboration with industry professionals.

Contents

2018 BC Building Code Changes

Important Updates for Part 9 Construction

About this Guide

This bulletin was prepared to provide the building industry with a detailed overview of the changes in Part 9 of the BC Building Code (BCBC 2018), effective December 2018. The changes to the BC Building Code are based on the 2015 National Building Code. Changes include updates to sound transmission requirements, seismic design and climatic data, and updates for stairs, handrails and guards. This bulletin focuses on Part 9 residential construction related changes.

Accessibility

The BC Building Code 2018 combines the requirements of the 2015 National Building Code with BC's historical requirements for a greater level of building accessibility. The updated requirements can be found in Section 3.8. Accessibility of the BCBC 2018. Although accessibility requirements do not generally apply to small Part 9 residential construction, they may apply in some cases for Part 9 small commercial or mercantile occupancies, and apartments/condominiums.

Bulletin No. B18 – 05 Accessibility in the 2018 British Columbia Building Code provides an overview of the changes along with links to resources.

Asbestos

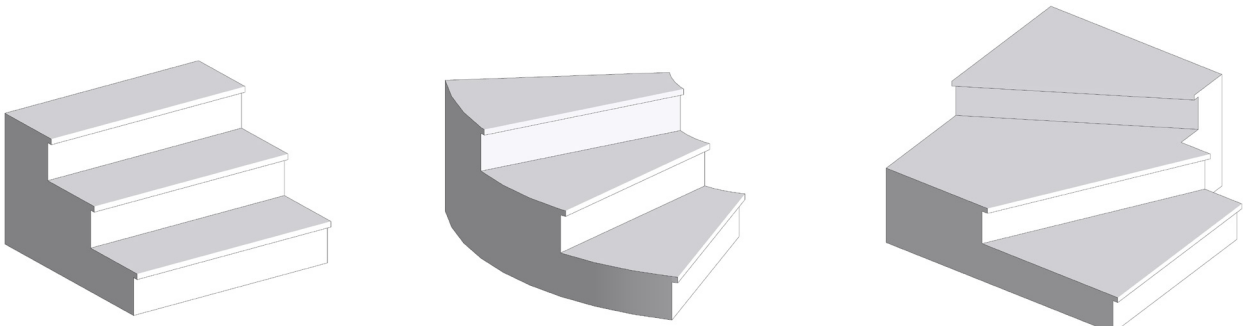
Asbestos-containing materials are no longer listed among acceptable materials in the BCBC 2018, due to the potential risk to the health and safety of builders and building occupants.

> Since the publication of the BCBC 2018, Health Canada has since issued a complete ban on the use of asbestos products.

9.8. Stairs, Ramps, Handrails and Guards

9.8.3. Stair Configurations

Minimum dimensions for all stair types have been increased in the BCBC 2018. The Code distinguishes three principal types of treads: **rectangular, tapered** (previously referred to as angled) and **winders**, as shown below. Spiral stairs (i.e. multiple steps that rotate about a tight axis turning greater than 90°) are not compliant with BCBC 2018.



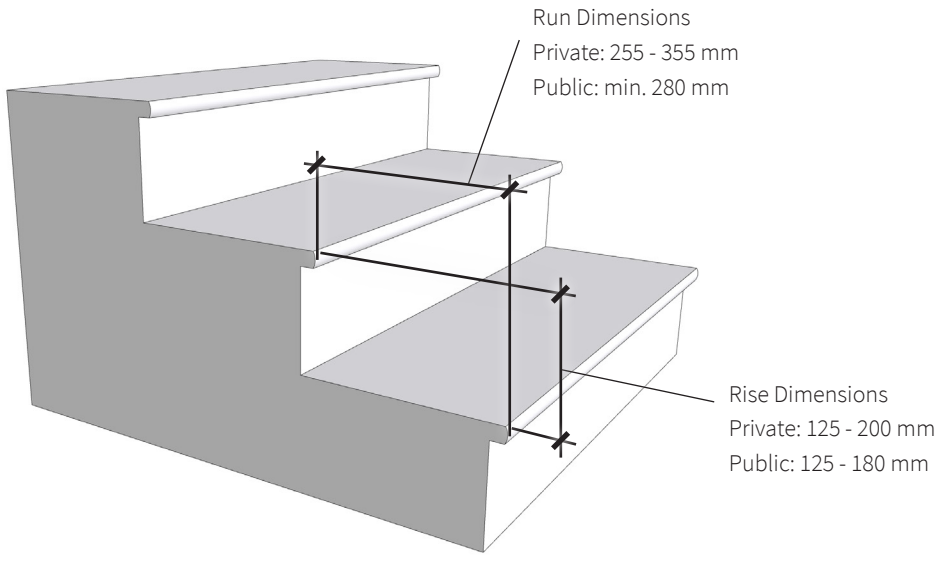
Rectangular *Tapered* *Winders*

Definitions:

- **Flight:** a series of steps between landings.
- **Run**: the horizontal distance between two adjacent tread nosings on a stair.
- **Tapered tread**: a tread with non-parallel edges that increases or decreases its run uniformly over its width. The definition of tapered tread includes treads in curved stairs and treads in winder stairs. However, requirements for winders differ from those for other tapered treads. All tapered treads and winders within a curved flight must turn in the same direction.
- **Private Stairs**: exterior or interior stairs that serve single dwelling units or that serve garages that serve single dwelling units.
- **Public Stairs**: all stairs not described as service stairs or private stairs.

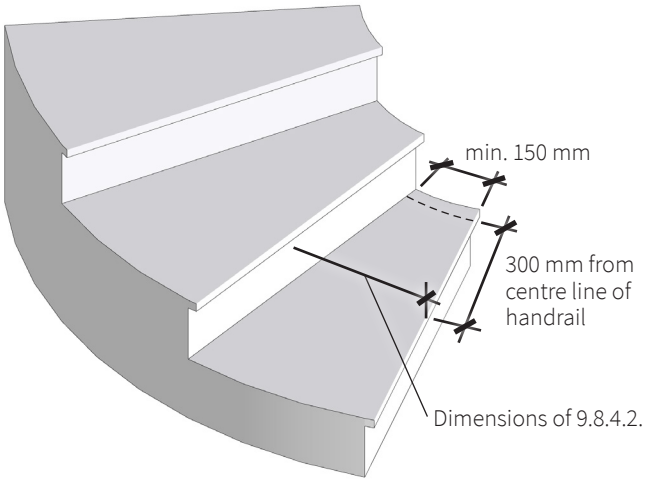
9.8.4.2. Dimensions for Rectangular Treads (Straight Flight)

The required rise and run dimensions have changed for stairs as listed in Table 9.8.4.2. and shown below. The dimensions shown below also apply to some tapered treads. The changes of dimensions reflect current research on stair safety.



9.8.4.3. Dimensions of Tapered Treads

Tread dimensions for tapered treads are set to ensure minimum and maximum run dimensions at the walking line. Tapered treads must have a run that is not less than 150 mm at the narrow end of the tread and comply with the dimensions stated in Table 9.8.4.2. (see previous page) when measured at a point 300 mm from the centre line of the handrail at the narrow end of the tread.



9.8.4.6. Winders

The basic arrangements of winders are unchanged from the previous BCBC, but minimum tread dimensions must also follow the updated dimensions from Table 9.8.4.2. at 200 mm from the narrow end.

9.8.6.3. Dimensions of Landings

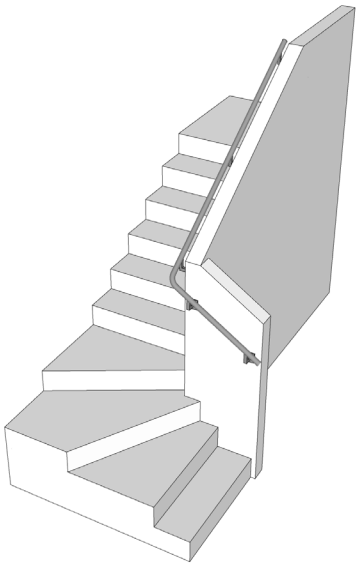
New measurement set points are given for dimensions of landings. Where the landing in a stairway or ramp does not turn or turns less than 90°, the minimum length of the landing must be at least the required width of the stair or ramp, or 1100 mm, whichever is less. The length of a landing shall be measured perpendicular to the nosings of adjacent steps or to the end of the ramp, at a distance equal to half the length required from the narrow edge of the landing. See Figure A-3.4.6.4. in the Notes section of Part 3 of the BCBC 2018.

9.8.7.1. Required Handrails

The number of handrails required based on stair or ramp location and width is unchanged; however, a new requirement states that for stairs or ramps serving more than two dwelling units, at least one handrail must be located 750 mm or less from the natural path of travel on the stair or ramp. This is so that handrails be installed in relation to the required stair width only, regardless of the actual width of the stair or ramp. The required handrails are provided along the assumed natural path of travel to, from, and within the building.

9.8.7.2. Continuity of Handrails

The term "continuously graspable" (previously "continuous") has been added into the body of the Code, and at least one of the required handrails of a stair or ramp must be **continuously graspable** throughout the length of the ramp and flight of stairs, from bottom riser to top riser. For stairs or ramps serving a single dwelling, a handrail is permitted to start from a newel post or volute installed on the bottom tread. Interruptions to the handrail are permitted at doorways and between flights (i.e. landings). Note that Winders are considered part of one flight of stairs and require handrails throughout the length (i.e. around the curve of the steps).

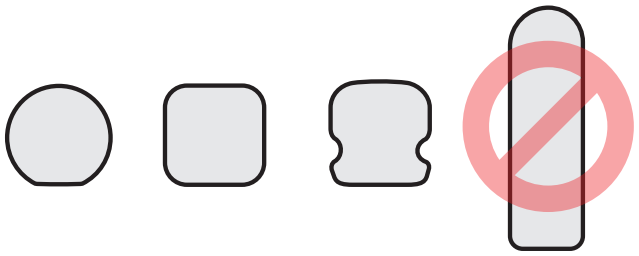


Handrails must be continuously graspable throughout the flight of steps, including around winders

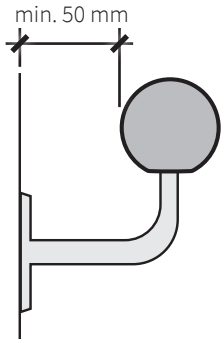
9.8.5. Ramps must now be a minimum of 1100 mm in width, except for ramps serving a single dwelling unit, for which the minimum width is still 860 mm.

9.8.7.5. Ergonomic Design (of Handrails)

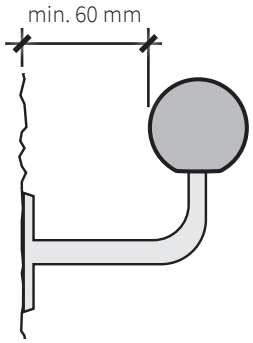
"Graspable" is now more clearly defined in the Notes section of Part 9. The graspable portion of a handrail should allow a person to comfortably and firmly grab hold by allowing their fingers and thumb to curl under part or all of the handrail. While this is primarily a clarification and wording change rather than a new item, these clear handrail shape requirements combined with the need for continuous graspability along flights of stairs make careful stair and handrail design and construction an important part of BCBC compliance. The minimum clearance between a handrail and the wall or other surface behind is also now defined. It must be at least 50 mm for smooth surfaces, but if the surface is rough or abrasive it must be at least 60 mm.



Handrails must be **continuously graspable** and allow fingers and thumb to curl under part or all of it



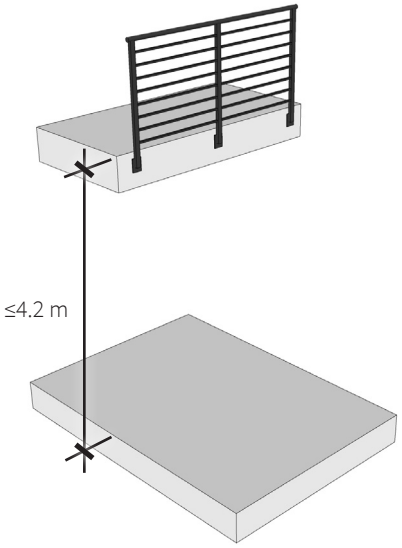
Handrail adjacent to **smooth** surface



Handrail adjacent to **rough** or **abrasive** surface

9.8.8.6. Design of Guards to Not Facilitate Climbing

The existing requirements for the design of guards to not facilitate climbing (i.e. limiting footholds) have been relaxed and now only apply to guards protecting a level more than 4.2 metres above the adjacent level. This change is based on industry research that shows climbability of guards has not created the safety issues previously expected. The relaxation allows for guard designs not previously considered compliant. Guards serving levels more than 4.2 metres above the adjacent surface must still limit climbing and comply with the requirements of 9.8.8.6., further described in Note A-9.8.8.6.(1) in the Code.



Relaxations for climbabilty of guards apply to levels 4.2 m or less above the adjacent level

9.8.8.5 Openings in Guards: Openings through guards must be of a size that prevents the passage of a spherical object having a diameter of 100 mm. Note that guards with tensioned cables (horizontal or vertical) may not comply with this requirement, if the flexibility of the cables can allow a larger opening than their spacing.

9.9.11. Signs

9.9.11.2. Visibility of Exits

The new Sentence 9.9.11.2.(2) requires that where an exit door leading directly to the outside could be obstructed by parked vehicles or storage because of its location, a sign or a physical barrier must be installed on the exterior side of the door. Note that Subsection 9.9.11. does not apply to exits for one dwelling unit.

9.10.14.5. & 9.10.15.5. Construction of Exposing Building Faces

When designing exposing building faces, the face of the roof soffit is now allowed to be built within the limiting distance up to the property line, regardless of building face limiting distance, if the property line faces a:

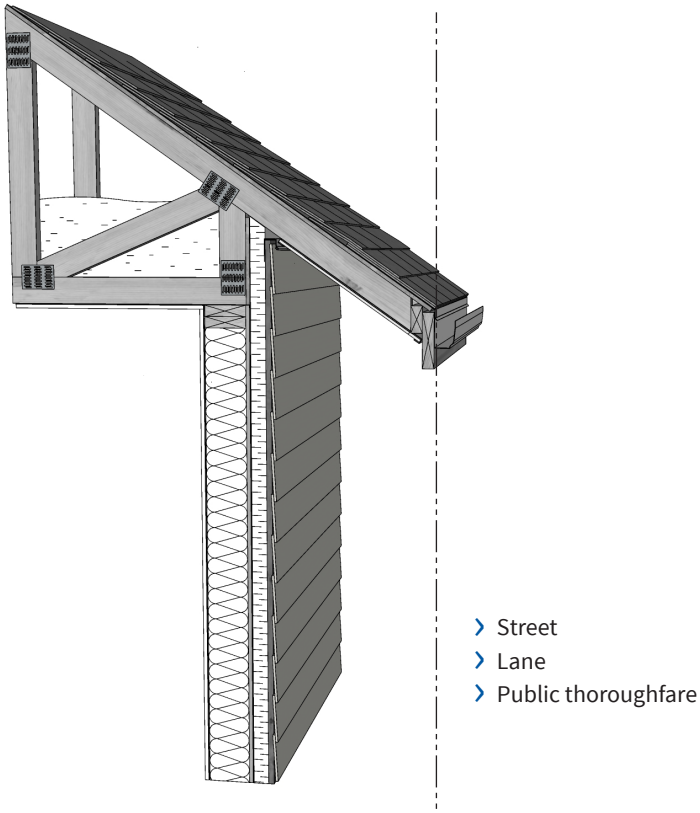
- Street
- Lane
- Public thoroughfare

The restriction of projecting roof soffits to no closer than 0.45 m still applies at all other property lines.
Local zoning bylaws also still apply.

Note that Subsection 9.10.15. applies to:

- buildings that contain only dwelling units and have no dwelling unit above another dwelling unit, and
- accessory buildings that serve those buildings.

Subsection 9.10.14. applies to all other Part 9 buildings.



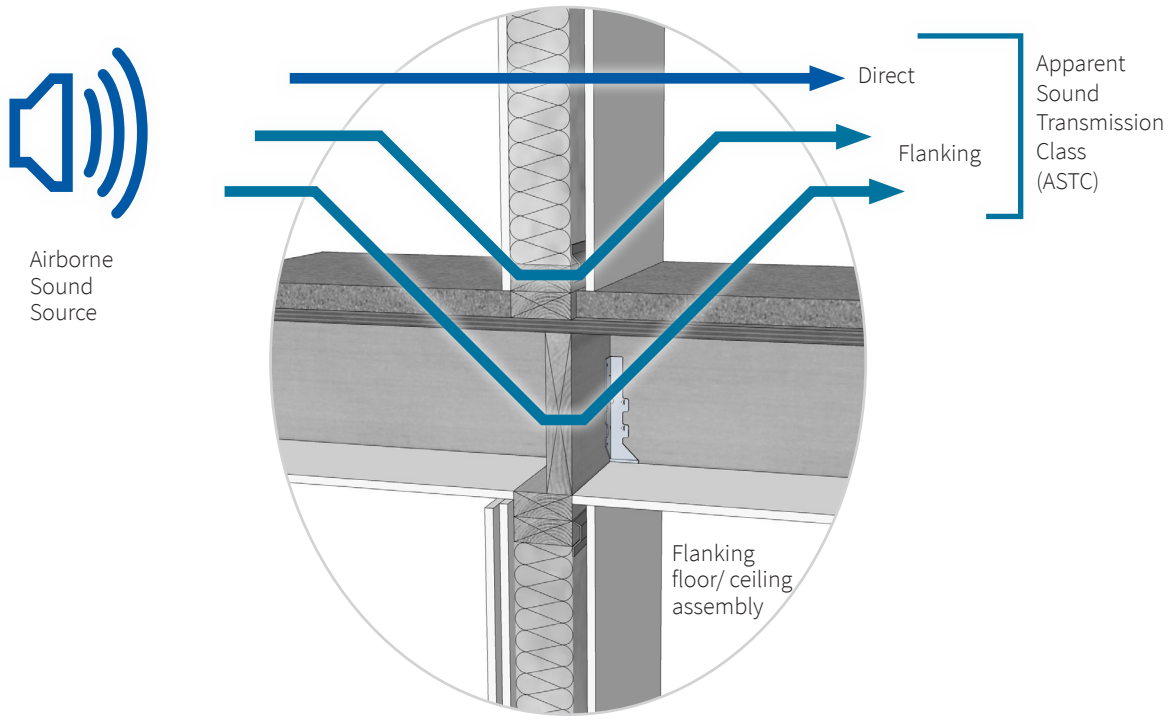
The face of the soffit is permitted to project to the property line adjacent to a street, lane, or public thoroughfare

9.11. Sound Transmission

Sound transmission is an important aspect of the design and construction of townhouses, multi-unit residential, and mixed use buildings, as it has a major impact on occupant comfort and privacy. BCBC 2018 requirements for sound transmission have evolved from using a minimum Sound Transmission Class (STC) rating alone that accounted only for direct airborne sound transmission of the separating assembly, to an approach that accounts for flanking sound transmission around the separating assembly.

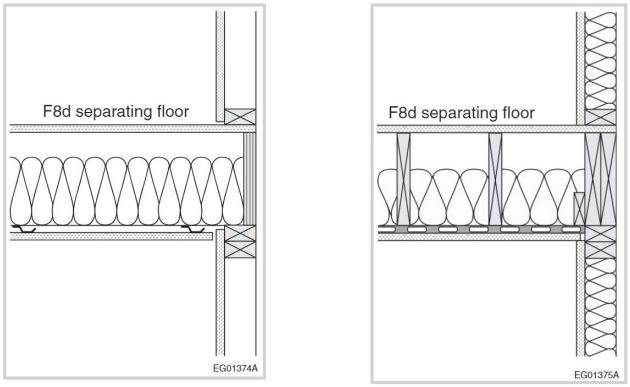
There are now two compliance pathways for meeting the sound transmission requirements of the new BCBC 2018:

1. Sound Transmission Class remains a way to show compliance for separating assemblies, but some new prescriptive construction requirements for flanking assemblies have been added to this pathway to improve sound attenuation. A separating assembly must provide an **STC rating of not less than 50** and adjoining constructions must **conform to Article 9.11.1.4** (see next page).
2. Alternatively, assemblies can now follow the new Apparent Sound Transmission Class (ASTC) rating, where, in addition to direct sound transmission, flanking sound transmission is accounted for in the overall rating system. Compliance with the minimum ASTC rating requirements can be shown through measurement, calculations, or prescriptive references. Separating assemblies and adjoining constructions must provide an **ASTC rating of not less than 47**.



The **Apparent Sound Transmission Class** rating is determined through testing according to ASTM E413 and ASTM E336, which involves complex testing and measurement tools, or calculations in accordance with Article 5.8.1.4. or 5.8.1.5. For more information and assembly options that meet the requirements for compliance with ASTC, visit www.constructioncanada.net/paradigm-shift-in-acoustic-regulations and http://soundpaths.nrc-cnrc.gc.ca.

Article 9.11.1.4., Table 9.11.1.4. and Tables A-9.11.1.4.-A to A-9.11.1.4.-D each present generic options for the design and construction of junctions between separating floors and walls and their flanking assemblies. Options are shown with annotated illustrations throughout Tables A-9.11.1.4.-A to A-9.11.1.4.-D. Other designs may be equally acceptable if their sound resistance can be demonstrated to meet the minimum ASTC rating or better on the basis of tests referred to in Article 9.11.1.2., or if they comply with Subsection 5.8.1. Some caution should be applied when designing solutions beyond the options provided in these tables. For example, adding more material to a wall could negatively impact its sound performance or have no effect at all.



Tables A-9.11.1.4.-A to A-9.11.1.4.-D of the BCBC 2018 include many helpful annotated details

9.13. Dampproofing, Waterproofing, and Soil Gas Control

In Subsection 9.13.2., the list of acceptable dampproofing materials has been updated and the list of recognized waterproofing materials expanded, with many generic materials identified. The BCBC 2018 also expands requirements for the application of dampproofing materials; they must be installed in accordance with the manufacturer's instructions with regard to surface priming, conditions during application, application quantity and rate, and curing times. Express recognition is also given to ICF construction. This section makes it clear that manufacturer's application instructions are compliant with BCBC 2018.

Division A-1.1.3., Division B-9.13.4

New compliance parameters have been added in relation to soil gas protection. Building codes and revisions to building codes are challenged to keep pace with the increasingly available radon data known to local authorities. For this reason, the application of radon venting rough-in requirements is now deferred to the data established by the authority having jurisdiction and, in the absence of such data, to a revised Table C-4 (previously Table C-3) in BCBC 2018. This means that in locations where Table C-4 currently does not require radon protection, its ultimately up to the authority having jurisdiction whether or not it is required. Table C-4 has also been updated to delete the concept of radon areas 1 and 2. For clarity and ease of understanding, the new table simply lists whether the radon rough-in is required or not required for each location in British Columbia.

Health Canada guidelines for indoor radon concentration establish an annual average concentration of 200 Bq/m^3 (Becquerels per square metres, a unit of radioactivity). In locations where there is evidence of radon concentrations in buildings exceeding the Health Canada guidelines, a means to address this high radon concentration in the future is required by the BCBC, should unacceptable indoor radon concentrations be found once the building is completed. Evidence of indoor radon levels exceeding Health Canada guidelines has been found in many areas that are currently exempted from providing a means to address high radon concentrations in the future (e.g., a rough-in for a subfloor depressurization system).

BC Housing will be releasing a guide further explaining the current BCBC requirements regarding section 9.13.4. Stay tuned for BC Housings' *Builder Guide to Site and Foundation Drainage: Best Practices for Part 9 Houses*.

9.23.13. Bracing to Resist Lateral Loads Due to Wind and Earthquake

Changes to seismic design data and climatic design data have resulted in changes to wood framing requirements for braced wall panels. Requirements for locations with high and extreme wind or seismic forces have also been modified. Table C-3 is dedicated to seismic design data only (previously part of Table C-2).

The new seismic design data includes increases to the seismic acceleration values for many parts of British Columbia. The BCBC 2018 accommodates the higher ratings by keeping all areas of British Columbia within the scope of Part 9 for wood-frame construction.

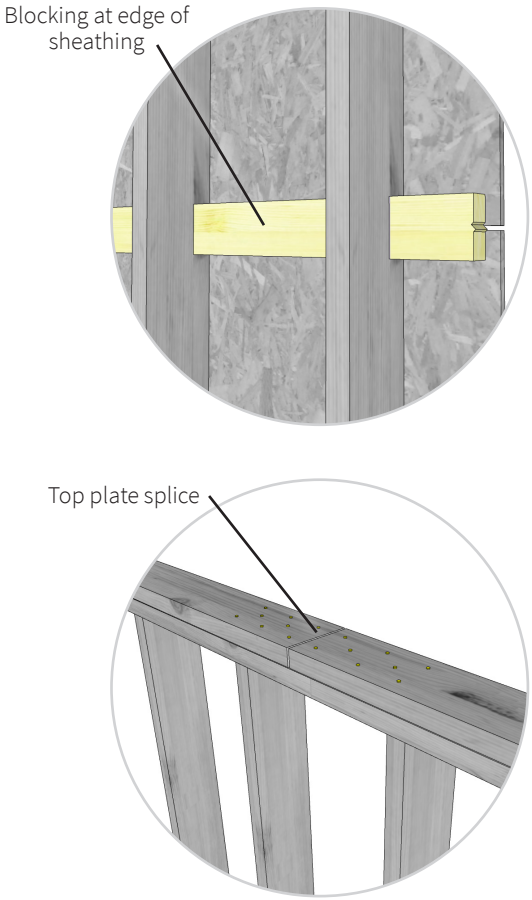
Table 9.23.13.6. Minimum Thicknesses of Cladding, Sheathing or Interior Finish for Braced Wall Panels has been revised and some of the panel material thicknesses have been increased. The biggest impact of the change is that in those areas where the seismic spectral response acceleration, $S_a(0.2)$, is greater than 0.90, diagonal lumber sheathing is no longer permitted for braced wall panels.

Note that of the 109 locations identified in Appendix C-3, 68 are locations where the $S_a(0.2)$ is less than or equal to 0.70 and the 1-in-50 hourly wind pressure is less than 0.80 kPa. For buildings in these locations, 9.23.13.1.(2) requires only that exterior walls be braced using the acceptable materials and fastening specified within Section 9.23. and there are no spacing or dimension requirements for braced wall panels.

The BCBC 2018 also contains updated fastener tables for sheathing, building anchorage, top plate splices, and blocking:

- Table 9.23.3.5.-C (fasteners for sheathed walls, roofs and floors)
- Sentence 9.23.3.5.(8) (blocking for edges of sheathing)
- Table 9.23.6.1. (anchor bolt spacing to foundation)
- Table 9.23.11.4 (top plate splices fastening along full length of braced bands)

Blocking is now required in the BCBC 2018 for within braced wall panels. Where required, all panel joints that are not structurally supported will require blocking that is a minimum depth of 38mm and having a width of at least 76mm, typically this would be a 2X4 on the flat.



Updates have been made to the various tables that set out the requirements for seismic bracing and fastening at the various wood-frame components and interfaces of the building, including blocking within braced wall panels, and top plate splices.

BC Housing will be updating the ***Illustrated Guide - Seismic Design of Houses - Lateral Bracing Requirements*** to further explain the new BCBC requirements regarding Section 9.23.13

9.25.5. Properties and Position of Materials in the Building Envelope

The use of exterior insulation in wall assemblies is becoming more common in the construction industry in British Columbia. If used correctly, continuous exterior insulation is one way to easily achieve higher effective R-values while also reducing the condensation risk within wall cavities and increasing overall durability.

9.25.5.1. Properties and Position of Materials in the Building Envelope

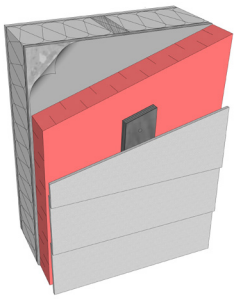
The characteristics listed in Sentence 9.25.5.1.(1) for the permeance of sheet and panel-type materials (including exterior insulation) results in two distinct categories and installation requirements for minimizing condensation risk:

- **Low Permeance**: materials with a permeance of less than 60 ng/(Pa · s · m^2) must comply with Table 9.25.5.2. for minimum insulation ratios outboard and inboard of the interior face of the material (see below).
- **Higher Permeance**: materials with a permeance of 60 ng/(Pa · s · m^2) or greater are not required to comply with Table 9.25.5.2.

Table 9.25.5.2. specifies the amount of thermal resistance that lower permeance sheet and panel-type materials in an assembly must have outboard of their inner face, as a ratio of the thermal resistance of the inboard portion of the assembly. This is given as the "Ratio of Outboard to Inboard Thermal Resistance". The aim of this requirement is to reduce the risk of condensation within assemblies on the back side of lower permeance materials due to outward vapour flow, where moisture could be trapped. If the exterior lower permeance material is installed without enough outboard thermal resistance, it's inner surface temperature may drop below the dew point of the air inside the assembly cavity and risk causing condensation. By requiring a minimum amount of thermal resistance outboard, this risk is minimized.

Compared to previous versions the BCBC 2018 contains an additional Sentence 9.25.5.1.(4) which results in a third category for exterior sheet and panel-type materials:

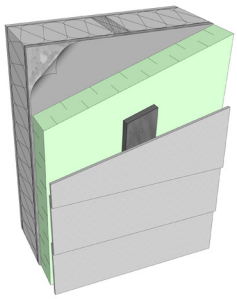
- **Lower Permeance & Insulative**: materials with a permeance of not less than 30 ng/(Pa · s · m^2) (approximately 0.5 US Perm) and thermal resistance of at least 0.7 m^2·K/W (approximately R-4), and used in locations where the heating degree-days are less than 6000, are not required to comply with Table 9.25.5.2.



Low Permeance
(9.25.5.1. (1)a)i))

< 60 ng/Pa · s · m^2
(< 0.95 US Perm)

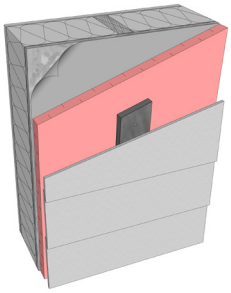
Must comply with Table 9.25.5.2
(insulation ratios)



Higher Permeance

≥ 60 ng/Pa · s · m^2
(≥ 0.95 US Perm)

Not required to comply with
Table 9.25.5.2



Lower Permeance & Insulative
(9.25.5.1. (4))

≥ 30 ng/Pa · s · m2

≥ RSI-0.7 (R-4)

< 6000 HDD

Not required to comply with
Table 9.25.5.2

New BCBC 2018 language results in three categories of exterior sheet and panel-type materials installed outboard of an insulated assembly

Insulation Ratio Limitations: The insulation ratios in Table 9.25.5.2. are based on the assumption that the building includes a mechanical ventilation system, a < 60 ng/Pa·s·m^2 vapour barrier, and an air barrier. The insulation ratio requirements cannot be applied where there is a higher-than-normal interior moisture load such as in pool rooms or saunas. In these areas the design must be completed following Part 5 of the BCBC 2018. The insulation ratio requirements do not apply to wood sheathing products up to 1/2" thick.

Further Guidance Beyond Code Minimum: Vapour Flow, Condensation, and Insulation Ratios

During colder weather, outward vapour pressure can drive moisture by diffusion through the enclosure. At the same time, the insulation within the enclosure causes exterior surfaces like the sheathing to drop lower than the interior dew point temperature. If vapour flow or air leakage does occur, there is a risk of condensation on the colder enclosure surfaces, in most cases on the interior face of the exterior sheathing.

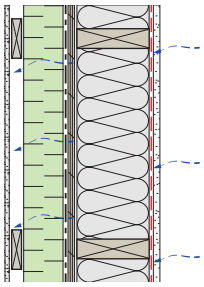
To mitigate condensation due to vapour flow, Article 9.25.4.2. requires the installation of a vapour barrier with a maximum permeance of 60 ng/(Pa·s·m^2). Assemblies without an interior vapour barrier must be designed according to Part 5 or have an Alternative Solution.

Article 9.25.4.3. requires the vapour barrier be installed on the warm side of wall, ceiling, and floor assemblies. Adding a vapour barrier at the warm side of the insulation reduces the outward vapour diffusion so that the condensation risk within the cavity is minimized. Furthermore, if condensation does occur, the enclosure materials may still allow drying outwards, if they are permeable enough. This balance is the basis for the design of most enclosure assemblies, especially walls, up until recently.

New BCBC 2018 energy requirements are resulting in the need for exterior insulation installed behind the cladding. This is an effective way of increasing the thermal performance of the assembly, but may introduce new risks not previously encountered. If the exterior insulation doesn't have a high-enough permeance or thermal resistance, the assembly may trap condensation moisture. The following three assembly categories for exterior insulation types and ratios should be considered with respect to vapour control:

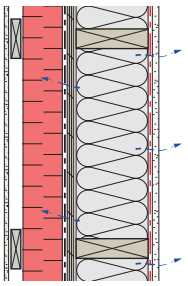
Interior vapour control and permeable exterior insulation

- The interior vapour barrier is intended to stop all moisture transfer outward (and inward).
- Permeable exterior insulation keeps the sheathing warm and reduces condensation risk, but still allows vapour to flow through to the exterior if needed for drying. Insulation with permeance of at least 300 ng/(Pa·s·m^2) and even higher is recommended for this approach.



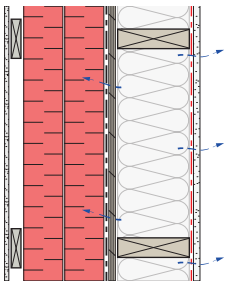
Variable interior vapour control and impermeable exterior insulation

- Interior vapour barrier is intended to stop most moisture transfer outward, but may be permeable enough to allow some inward moisture transfer (i.e. drying) if needed. This is often achieved with a smart vapour barrier product.
- Impermeable exterior insulation keeps the sheathing warm and reduces condensation risk, but may also limit outward vapour flow and drying if wetting does occur. Insulation with permeance of less than 60 ng/(Pa·s·m^2) and even higher can have this effect.



High ratio of outboard to inboard thermal resistance (large amount of exterior insulation)

- With a high ratio of any type of exterior insulation, or even all insulation outboard of the sheathing, the sheathing temperature will be reliably kept above the interior dew point and there is a low risk of condensation. The insulation ratio should be approximately 2/3 outboard to 1/3 inboard, but it depends on climate and interior conditions.
- An interior vapour barrier is not necessarily needed, since the risk of condensation within the cavity is low and the potential for inward drying would be beneficial. Assemblies with no interior vapour barrier require Part 5 design.



In BC's climate zones, a vapour permeable exterior insulation in combination with an interior vapour barrier typically provides a lower risk wall assembly than does an assembly using impermeable exterior insulation.

9.26. Roofing

The definition of "roof" in the BCBC 2018 has been updated to mean "sloped or near-horizontal assemblies that protect the spaces beneath them, including platforms that effectively serve as roofs with respect to the accumulation or drainage of precipitation".

Required protection has also been added. Roofs shall be protected with roofing, including flashing, installed so that it:

- Effectively sheds water
- Prevents the ingress of water and moisture into building assemblies and occupied spaces
- Minimizes the ingress of water due to ice damming into building assemblies.

Compliance with the required protection must be demonstrated by conforming to the remainder of the roofing section, or the requirements of Part 5. Several out of date standards have been replaced with current, more applicable standards covering a variety of material types and applications. Note that any mention of Asbestos-Cement Corrugated Sheets roofing has been removed.

9.27.13. Exterior Insulation and Finishing System

This Subsection applies to exterior insulation finish systems (EIFS) that are covered in the scope of CAN/ULC-S716.1, “Exterior Insulation and Finish Systems (EIFS) – Materials and Systems,” and have a geometrically defined drainage cavity with a minimum cavity depth of 9.5 mm and an open area equal to not less than 13% of the area of a full-size EIFS panel.

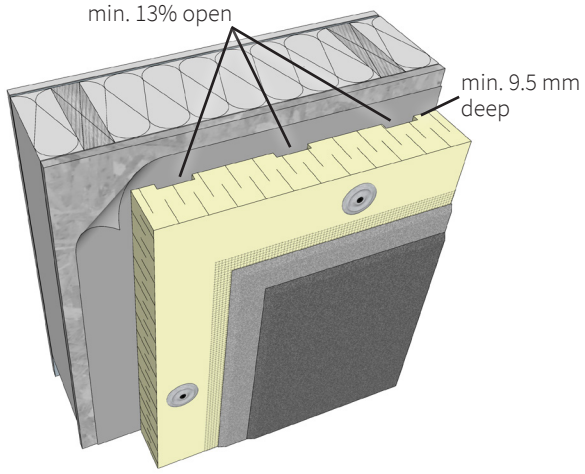
A second type of EIFS uses flat board-stock panels, with the drain cavity created by the adhesive beads that create a capillary break. This second type of system may be used, but it must comply with Part 5 of the Code and is not accepted under Part 9.

“Geometrically defined drainage cavity” (GDDC) refers to the channels, grooves or profiles cut into the insulation backing of an EIFS panel for the purpose of providing a way for water that gets behind the system to drain out. The channels, grooves or profiles of one panel need to connect to the channels, grooves or profiles of adjacent panels in order for drainage to occur consistently and uniformly across the entire EIFS (panel to panel). While the size of a channel, groove or profile can be verified by inspecting a single panel, the intent of Sentence 9.27.13.1.(1) is that the required drainage capacity be achieved across the entire system.

Additional information on the design and installation of EIFS can be found in the “EIFS Practice Manual,” published by the EIFS Council of Canada or the manufacturer’s literature.

The list of acceptable substrates for each type of EIFS can be found in a system’s respective test report to CAN/ULC-S716.1, “Exterior Insulation and Finish Systems (EIFS) – Materials and Systems”. However, the following substrates are generally considered acceptable:

- Minimum 11 mm thick OSB
- Minimum 11 mm thick exterior-rated plywood
- Minimum 12.7 mm thick exterior gypsum sheathing conforming to ASTM C 1177/C 1177M
- Cementitious panels, fibre-cement panels, concrete



EIFS that complies with ULC S716.2, “Standard for Exterior Insulation and Finish Systems (EIFS) – Installation” are now acceptable under Part 9

Impact of the inboard drainage cavity on thermal performance: Current research shows that the impact of a wall drainage cavity behind the insulation on the thermal performance of the assembly is minimal. The BCBC 2018 does not require that it be accounted for in calculations.

9.32.1.3. Venting of Laundry-Drying Equipment

A new Article has been added to clearly define the installation of dryer exhaust ducts. Exhaust ducts or vents for laundry dryers must discharge directly to the outdoors. Exhaust ducts connected to dryers must be:

- Independent of other exhaust ducts
- Accessible for cleaning
- Constructed of a smooth corrosion-resistant material

The above new requirements only apply to permanently installed duct, not the connection between the dryer and the duct, which can still be made of flexible ducting.

*The new requirements for the venting of laundry-drying equipment do not prohibit the use of non-vented condensing dryers.

9.32.1.3.(3) Venting of Multiple Dryers: There are new requirements for when dryer ducts are grouped together. In these situations they must: be connected to a common exhaust duct that is vented by one central exhaust fan, that incorporates one central lint trap. The central exhaust fan must also include an interlock to activate it when laundry-drying equipment is in use, and where required by Article 9.32.4.1., be provided with make-up air.

9.33.6.4. (6) Duct Insulation

A new Sentence has been added to this Article to allow spray foam to be used as duct insulation. Spray foam insulation (foamed plastic) is permitted to be used to insulate galvanized steel, stainless steel, or aluminum air ducts, provided that:

- The spray foam insulation applied to supply ductwork be more than 3 m from the furnace bonnet
- The temperature within the ductwork where the insulation is installed is not more than 50°C
- The duct joints are sealed (taped)
- Return air plenums are separated from the spray foam insulation
- The spray foam insulation is protected (see below on acceptable protection methods)

The spray foam insulation must be protected; by interior finishes such as gypsum board (or as described in Subsections 9.29.4. to 9.29.9.), or provided the building does not contain a Group C major occupancy, by sheet metal that is mechanically fastened to the supporting assembly independent of the insulation, or by any thermal barrier that meets the requirements of Clause 3.1.5.15.(2)(e) (Part 3 Requirement).

Noteworthy BCBC 2018 changes Outside Part 9

Factory-Constructed Buildings

BCBC applies to site-built and factory-constructed buildings, but it can be difficult for the authority having jurisdiction to determine how a factory-built building achieves compliance. An Appendix note has been re-inserted into Division A under Sentence A-1.1.1.1.(3) to clarify how factory-constructed buildings conforming to CSA A277 ***Standard Procedure for Factory Certification of Buildings*** relate to the 2018 BC Building Code. This standard describes a procedure whereby an independent certification agency can review the quality control procedures of a factory and make periodic unannounced inspections of its products. The standard is not a building code, only a procedure for certifying compliance of factory-constructed components with a building code or other standard. If a factory-constructed building bears the label of an accredited certification agency indicating that compliance with the National Building Code has been certified using the CSA A277 procedure, the accepting authority will have assurance that the concealed components do not require re-inspection on site especially if concealed.

BC Plumbing Code 2018 Article 2.2.10.6. Water Efficiency of Plumbing Fixtures

Plumbing fixture efficiency requirements have been relocated from the BC Building Code to the BC Plumbing Code 2018. Some new requirements have been adopted from the 2015 National Plumbing Code to help achieve consistent requirements across Canada. Changes to flow rates do not apply to lavatories in health care facilities, emergency eye washes, or emergency showers. For public lavatories and showers, automatic shut off requirements are introduced. New plumbing fixture efficiency requirements have been adopted from the 2015 National Plumbing Code of Canada. A selection of updated maximum fixture flow rate requirements are provided in the following table.

Requirements for Maximum Fixture Flow Rates (Table 2.2.10.6.)	
Fixture	**Flow Rate (L/min)**
Private lavatory supply	Reduced from 8.3 to 5.7
Public lavatory supply	Reduced from 8.3 to 1.9
Kitchen supply	Unchanged at 8.3
Shower head	Reduced from 9.5 to 7.6

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